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| 10/560,872 | 12/14/2005 | Ulrich Katscher | PHUS030183US | 2094 |

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| FETZNER, TIFFANY A | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/560,872 | KATSCHER ET AL. | |
| | Examiner | Art Unit | |
| | Tiffany A. Fetzner | 2859 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/14/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on **12/14/1005** is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement. The initialed and dated information disclosure statement (IDS) submitted on **12/14/1005** is attached to this office action.

### *Drawings*

3. The drawings are objected to because The MRI imager shown in figure 1 is blurry, distorted and the middle of the MRI imager shown is exceptionally difficult to make out. Please resubmit a better, clearer, unshaded MRI imager component in figure 1 where the components and reference lines of reference numbers 10, 12, 14, and z are clearly discernable. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-13, 15-19** and **21** are rejected under **35 U.S.C. 102(e)** as being anticipated by **Zhu et al.,** US patent **7,009,396 B2** issued March 7th 2006, filed September 12th 2002.

6. With respect to **MRI system Claim 1**, and corresponding **method claim 17**, **Zhu et al.,** teaches and shows "A magnetic resonance imaging system" [See figure 1] "including: a means for encoding magnetic resonance in at least a readout direction" [See col. 3 lines 55-60 and figure 1 along with col. 5 line 6 through col. 9 line 10, where encoding may occur along a phase, slice, frequency (i.e. readout), or an oblique direction.] "the encoding including applying a read magnetic field gradient profile;" [The examiner notes that the frequency encoding gradient taught throughout the reference, is equivalent to applicant's "read" magnetic gradient because the terms frequency encoding gradient and read gradient, or readout gradient are synonymous, equivalent terms in the MRI art.] Additionally, **Zhu et al.,** teaches and shows "a plurality of receive coils for receiving magnetic resonance signals;" [See figures 2, 3, and 4; components 250, 251, 252, and multi receive coil array 353 which is comprised of the multiple receivers identified as component 300 in figure 4.] "a sampling means for sampling the receive coils during application of the read magnetic field gradient profile to acquire samples from each receive coil at a measurement sampling rate;" [See the RF coil assembly] "a means for reconstructing the magnetic resonance samples acquired from each coil into a corresponding intermediate reconstructed image" [See col. 4 lines 47-

63; the "sub-images" correspond to applicant's "intermediate" images. See col. 5 line 19 through col. 9 line 20], "the intermediate reconstructed images" [See figure 3] "having a measurement field of view and a measurement spatial resolution in the readout direction;" [See figures 3 and 2 in combination the examiner notes that the readout or frequency encoding direction is the direction of the table motion, which corresponds to the spatial resolvability measurements of figure 3 for each FOV.] "and a means for combining the intermediate reconstructed images" (i.e. processor 161) "based on coil sensitivity factors" [See col.. 8 line 28 through col. 9 line 20, col. 2 lines 9-12] "to produce a final reconstructed image having a final field of view and a final spatial resolution in the readout direction, wherein at least one of the final field of view and the final spatial resolution is increased over a corresponding one of the measurement field of view and the measurement spatial resolution in the readout direction." See col. 2 lines 47-50; col. 4 line 32 through col. 9 line 20 and especially figures 2 and 3 in combination where the FOV of the resulting image has a spatial resolution from 0 to 4.5 along the frequency / read encoding direction for the overall final FOV.]

7. With respect to **Claim 2**, **Zhu et al.,** teaches and shows "a coils sensitivities processor that computes coils sensitivities data based on a calibration" (.e. regional) "image". [See figure 1 processor 161, col. 8 lines 28 through col. 9 line 20, col. 2 lines 9-12] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

8. With respect to **Claim 3**, **Zhu et al.,** teaches "the combining means" (i.e. processor 161) "solves a set of linear equations relating pixel values of the intermediate reconstructed images and coils sensitivities data computed by the coils sensitivities processor to compute a pixel value of the final reconstructed image" [See col. 2 lines 9-12; col. 2 lines 47-50; col. 6 line 34 through col. 8 line 61]. ] The same reasons for rejection, which apply to **claims 1, 2** also apply to **claim 3** and need not be reiterated.

9. With respect to **Claim 4**, **Zhu et al.,** teaches and shows "a magnetic resonance. imaging scanner" [See figure 1] "that encodes magnetic resonance samples in both phase encode and readout directions" [See col. 5 line 15 through col. 9 line 20, as the ability to adjust both of the phase and frequency/readout gradients is taught throughout

the reference. The same reasons for rejection, that apply to **claim 1** also apply to **claim 4** and need not be reiterated.

10. With respect to **Claim 5**, **Zhu et al.,** teaches that "the sampling means also acquires magnetic resonance samples encoded in the phase encode direction, the magnetic resonance imaging scanner and the receive coils cooperating to effect sensitivity encoding in the phase encode direction." [See col. 5 line 6 through col. 9 line 20, as the specifics of this limitation are explained by **Zhu et al.,** in detail.] The same reasons for rejection, which apply to **claims 1, 4** also apply to **claim 5** and need not be reiterated.

11. With respect to **Claim 6**, **Zhu et al.,** teaches that "the sampling means also acquires magnetic resonance samples encoded in the phase encode direction, the magnetic resonance imaging scanner and the receive coils cooperating" [See col. 5 line 6 through col. 9 line 20] "to effect variable density sensitivity encoding" (i.e. a reduction in the number of phase encodes) "in the phase encode direction". [See col. 2 lines 9-12; col. 5 line 58 through col. 6 line 67; and col. 8 lines 1-61 where the number of phase encoding lines are reduced during acquisition in the phase encoding direction as during a SENSE methodology.] The same reasons for rejection, which apply to **claims 1, 4** also apply to **claim 6** and need not be reiterated.

12. With respect to **Claim 7**, **Zhu et al.,** teaches that "the magnetic resonance signals are encoded in the phase encode direction, and the sampling means acquires samples that are encoded in the phase encode direction and the readout" (i.e. frequency) "direction with a sufficiently low sampling density that the intermediate reconstructed images" (i.e. the sub-images / regional images) "are aliased in each of the phase encode direction and the readout" (i.e. frequency) direction;" [See col. 1 line 33 through col. 2 line 12 and col. 7 line 60 through col. 8 line 61.] "the combining performed by the combining means unfolds the intermediate reconstructed images in both the phase encode direction and the readout direction to produce the final reconstructed image with the aliasing removed." [See col. 2 lines 47-50; col. 4 line 47 through col. 8 line 61.] The same reasons for rejection, which apply to **claims 1, 4** also apply to **claim 7** and need not be reiterated.

13. With respect to **Claim 8**, **Zhu et al.,** teaches that "the sampling means samples the receive coils to read the magnetic resonance samples over a shortened read gradient profile such that the reconstructing means produces the intermediate reconstructed images with degraded measurement spatial resolution in the readout direction compared with the final" (i.e. composite) "spatial resolution in the readout direction; the sampling means samples the receive coils at a sampling rate in the phase encode direction which is sufficiently low such that the reconstructing means produces the intermediate reconstructed images with aliasing in the phase encode direction; and the combining performed by the combining means produces the final reconstructed image with both the spatial resolution degradation in the readout direction and the aliasing in the phase encode direction removed." [See col. 2 line 9 through col. 9 line 20, as the entire disclosure of the **Zhu et al.,** invention is directed to each of the recited steps, and provides support for the fact, that these method steps are already known from the **Zhu et al.,** methodology set forth.] The same reasons for rejection, which apply to **claims 1, 4** also apply to **claim 8** and need not be reiterated.

14. With respect to **Claim 9**, **Zhu et al.,** teaches that "the sampling means acquires samples in the readout" (i.e. frequency) "direction that map to low" (i.e. the center) "frequency readout values of a k-space" because **Zhu et al.,** teaches that every part of a subjects body is acquired in a central (i.e. low frequency band) portion of one sub-image. [See col. 6 lines 27-34] "and not to higher frequency readout values" (i.e. the edge portion of one sub-image) "of the k-space" The examiner notes that any steps performed before the Fourier transformation image reconstruction are intrinsically and automatically performed in k-space, which includes the frequency and phase encoding steps taught in the **Zhu et al.,** reference. The same reasons for rejection, which apply to **claims 1, 4** also apply to **claim 9** and need not be reiterated.

15. With respect to **Claim 10**, **Zhu et al.,** teaches that "the sampling means samples the low frequency readout values" (i.e. the central portion of one sub-image) [See col. 6 lines 27-34] "of the k-space over a shortened" (i.e. 1/Nth) "read" (i.e. frequency) "gradient profile". [See col. 5 line 6 through col. 8 line 61.] The same reasons for

rejection, which apply to **claims 1, 4, 9** also apply to **claim 10** and need not be reiterated.

16. With respect to **Claim 11**, **Zhu et al.,** teaches that "the sampling means undersamples the receive coils at a reduced sampling rate" [See col. 8 37 through col. 9 line 20] "such that the intermediate reconstructed images include aliasing in at least the readout" (i.e. frequency) direction, the combining means removing said aliasing during the combining. [See col. 5 line 6 through col. 9 line 20] The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

17. With respect to **Claim 12**, **Zhu et al.,** teaches that "the sampling means performs the undersampled receiving" [See col. 8 lines 27-51] "using a sampling time for each sample" (i.e. the FOV / N) [See col. 6 line 8 through col. 9 line 20.] "that is greater than a minimum sampling time" (i.e. the sampling time is commensurate with the rate of translation of the positioning device) [See col. 5 line 43 through col. 8 line 61] "for sampling at a maximum readout sampling rate." [See col. 5 line 34 through col. 9 line 20, where the sampling rate and the relationship of the field of view are explained in col. 6 line 8 through col. 7 line 26]. The same reasons for rejection, that apply to **claims 1, 11** also apply to **claim 12** and need not be reiterated.

18. With respect to **Claim 13**, **Zhu et al.,** teaches that "the measurement sampling rate is sufficiently low that aliasing occurs in the intermediate reconstructed images in the readout direction" [See col. 5 line 6 through col. 8 line 61], "and the means for combining" (i.e. the processor) "unfolds the intermediate reconstructed images based on the coil sensitivity factors" [See col. 2 lines 9-12; col. 8 lines 28-61] "to remove the aliasing in the readout" and phase encoded "direction, the final field of view being increased over the measurement field of view" [See col. 5 line 6 through col. 9 line 20, col. 2 lines 9-50]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

19. With respect to **Claim 15**, **Zhu et al.,** teaches that "the each intermediate reconstructed image has degraded high spatial frequency characteristics due to reduced sampling in the readout direction, and the combining performed by the

combining means restores the high spatial frequency characteristics in the final reconstructed image." [See col. 5 line 6 through col. 8 line 61, as this is a main idea expressed throughout the reference, in various forms]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 15**and need not be reiterated.

20. With respect to **Claim 16**, **Zhu et al.,** teaches that The magnetic resonance imaging system as set forth in **claim 15**, wherein: the degraded high spatial frequency characteristics in the readout direction include aliasing and a reduced field of view in the readout direction." [See col. 5 line 6 through col. 8 line 61] The same reasons for rejection, that apply to **claims 1, 15** also apply to **claim 16** and need not be reiterated.

21. With respect to **Claim 18**, **Zhu et al.,** teaches that "the encoding of magnetic resonance signals includes encoding the magnetic resonance signals using transmit SENSE.' [See col. 8 lines 28 through col. 9 line 10, where phase and frequency of the transmitter and receiver during the actual scan may be modified as the encoding is performed.] The same reasons for rejection ,that apply to **claims 1, 17** also apply to **claim 18** and need not be reiterated.

22. With respect to **Claim 19**, **Zhu et al.,** teaches that "the combining based on the coils sensitivities produces a final reconstructed image having a higher Spatial frequency content in the readout direction than any one of the intermediate reconstructed images." [See col. 5 line 6 through col. 9 line 20]. The same reasons for rejection, that apply to **claims 1, 17** also apply to **claim 19** and need not be reiterated.

23. With respect to **Claim 21**, **Zhu et al.,** teaches that the sampling includes at least one of: sampling over a shortened read magnetic field gradient profile such that the combining restores resolution in the readout direction; and sampling at a reduced sampling rate such that the combining restores field of view in the readout direction." [See col. 6 line 6 through col. 9 line 20.] The same reasons for rejection, that apply to **claims 1, 17** also apply to **claim 21** and need not be reiterated.

24. **Claims 1, and 17-20** are rejected under **35 U.S.C. 102(b)** as being anticipated by **King** US patent **6,242,916 B1** issued June 5th 2001, filed November 17th 1999.

25. With respect to system **Claim 1**, and corresponding method **claim 17**, **King** teaches and shows "A magnetic resonance imaging system" [See figure 1] "including: a means for encoding magnetic resonance in at least a readout direction" [See figure 1, col. 1 lines 31-57 where encoding may occur along a phase, slice, frequency (i.e. readout), or an oblique direction.] "the encoding including applying a read magnetic field gradient profile;" [See col. 1 lines 42-57] Additionally, **King** teaches and shows "a plurality of receive coils for receiving magnetic resonance signals;" [See coils 152a and 152b] "a sampling means for sampling the receive coils during application of the read magnetic field gradient profile to acquire samples from each receive coil at a measurement sampling rate;" [See the RF coil assembly, col. 4 line 1 through col. 7 line 27] "a means for reconstructing the magnetic resonance samples acquired from each coil into a corresponding intermediate reconstructed image" [See figures 1 and 3, col. 3 line 26 through col. 7 line 27.; the "$I_L$ images" correspond to applicant's "intermediate" images.] "the intermediate reconstructed images" [See figure 3] "having a measurement field of view and a measurement spatial resolution in the readout direction;" [See col. 5 line 28 through col. 7 line 20] "and a means for combining the intermediate reconstructed images" (i.e. processor 161) "based on coil sensitivity factors" [See col. 5 line 28 through col. 7 line 202] "to produce a final reconstructed image" (i.e. $I_H$ ) having a final field of view and a final spatial resolution in the readout direction, wherein at least one of the final field of view and the final spatial resolution is increased over a corresponding one of the measurement field of view and the measurement spatial resolution in the readout direction." See col. 1 6 through col. 7 line 20 in general as this is a main point of the **King** reference.]

26. With respect to **Claim 19**, **King.,** teaches that "the combining based on the coils sensitivities produces a final reconstructed image having a higher Spatial frequency content in the readout direction than any one of the intermediate reconstructed images." [See col. 2 line 45 through col. 3 line 12, and col. 5 line 29 through col. 7 line 26]. The same reasons for rejection, that apply to **claims 1, 17** also apply to **claim 19** and need not be reiterated.

27. With respect to **Claim 20**, **King** teaches that the high spatial frequency content of the final reconstructed image is generated during the combining by transforming aliasing in the readout direction of the intermediate reconstructed images into image data outside a field of view of the intermediate reconstructed images. [See col. 2 lines 46-55] The same reasons for rejection, that apply to **claims 1, 17, 19** also apply to **claim 20** and need not be reiterated.

***Claim Rejections - 35 USC § 103***

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

29. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

30. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

31. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Zhu et al.**, US patent **7,009,396 B2** issued March 7th 2006, filed September 12th 2002 as

applied to **claims 1-13, 15-19,** and **21** above, and further in view of **Wang** US patent **6,650,925 B2** issued November 18th 2003, with an effective US filing date of Feb. 8th 2002.

32. With respect to **Claim 14**, **Zhu et al.,** teaches that "the read" (i.e. frequency) "magnetic field gradient profile is shortened such that the measurement spatial resolution is less" in the sub and regional images which are formed "than the final spatial resolution", [See col. 5 line 30 through col. 8 line 61] **Zhu et al.,** lacks directly teaching that "the means for combining implements an inverting of a sensitivity matrix constructed from the coil sensitivity factors". However **Zhu et al.,** does teach the implementation of parallel SENSE reconstruction techniques. [See col. 8 lines 28-61] and **Wang** teaches that parallel combining of the image data in the correlation and reconstruction processing units" [See figures 1 and 2] is based on the coil sensitivity and directly involves the implementation of an inversion of a sensitivity matrix from coil sensitivity factors, [See the detailed explanation of **Wang** col. 1 line 7 through col. 6 line 58. The inversion of the sensitivity matrix is explained in col. 5 line 53 through col. 56 line 58 ] therefore It would have been obvious to one of ordinary skill in the art at the time that the invention was made that because **Zhu et al.,** teaches the parallel SENSE reconstruction techniques are utilized in his invention, and the teachings of **Wang** explain in detail how the inversion of the SENSITIVITY matrix is involved, with the parallel image reconstruction shown in figures 1 and 2 of **Wang** that the inversion limitation is an implicit aspect of the **Zhu et al.,** reference, given the conventional parallel SENSE reconstruction techniques of **Wang** The same reasons for rejection, that apply to **claim 1** also apply to **claim 14** and need not be reiterated.

**Conclusion**

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax**

**phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.

35. Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TAF
May 14, 2007

5.14.07

BRIJ SHRIVASTAV
PRIMARY EXAMINER